

GROUP OF COMPANIES



**HOZSTROY  
INSTRUMENT**

FORMWORK AND GALVANIZED METAL  
STRUCTURES MANUFACTURING COMPLEX





## About our company

### Group of companies HozStroyInstrument was established in 2001.

Our enterprise working at building market and having manufacturing capabilities with state-of-the-art technological level as a basis fully meets customers' requirements in the field of building structures intended for various services. Now Group of companies HozStroyInstrument is a leader of Russian market regarding manufacturing of formwork and components used for wall formwork.

Our purpose is to continue successful development and to become a lead partner in building industry. Our work corner-stones are "easier, simpler, faster and more reliable". Even when it is possible to believe that it cannot be done better everyday work at building sites arises new challenges and new requests. Therefore we constantly work in order to increase our competitiveness by creating innovation products, development of our employees' skills and offering a wide range of services.

Diversity of HozStroyInstrument products allows considering of different options. And if a standard solution is not profitable a special structure is proposed in order to find optimal decision together with a customer. High-quality fabrication, on-time delivery of parts to sites as well as technical conception and right selection of equipment is an important criteria for our company work.

In order to maintain high technical and engineering level of formwork manufacturing All-Russian association of formwork manufacturers was established with the assistance of HozStroyInstrument. The Association includes Russian manufacturers and designers. The Association performs research and engineering activities, testing and certification of formwork. The Association work is aimed at stimulation of technological progress in the field of building industry.



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## 1.

# Bridging formwork

## 1.1 Telescopic leg system

for bridging formwork used for erection of monolithic concrete and reinforced concrete structures

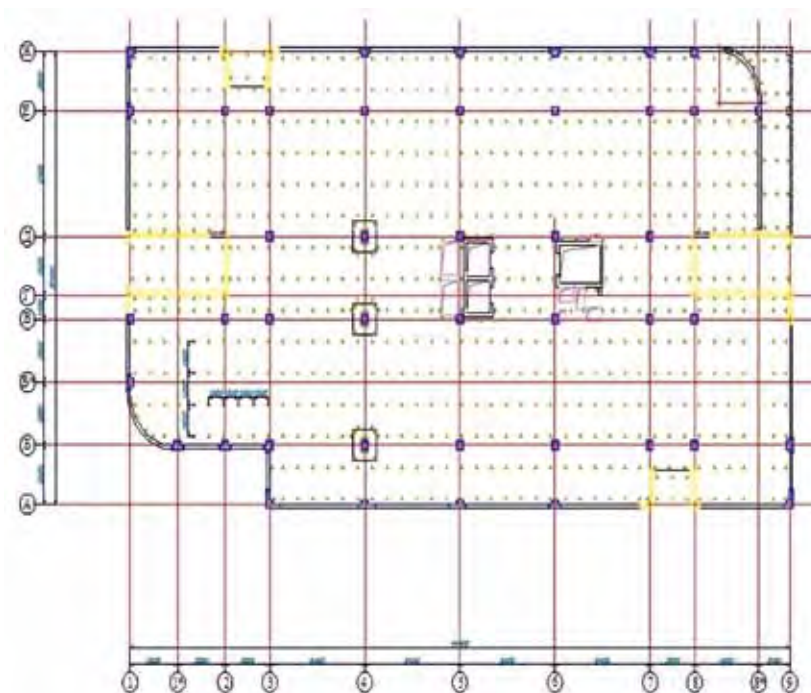
Telescopic leg system for bridging formwork is intended for erection of monolithic concrete and reinforced concrete structures.

Mounting and vertical position of telescopic leg is ensured by the use of folding tripod or connection frame which forms a cell from 4 telescopic leg, beam and bar mounting is ensured by the use of different modifications of universal "crowns".

Accessory set is a tripod, universal "crown", connection frame which ensure work convenience and safety during erection of monolithic structures.

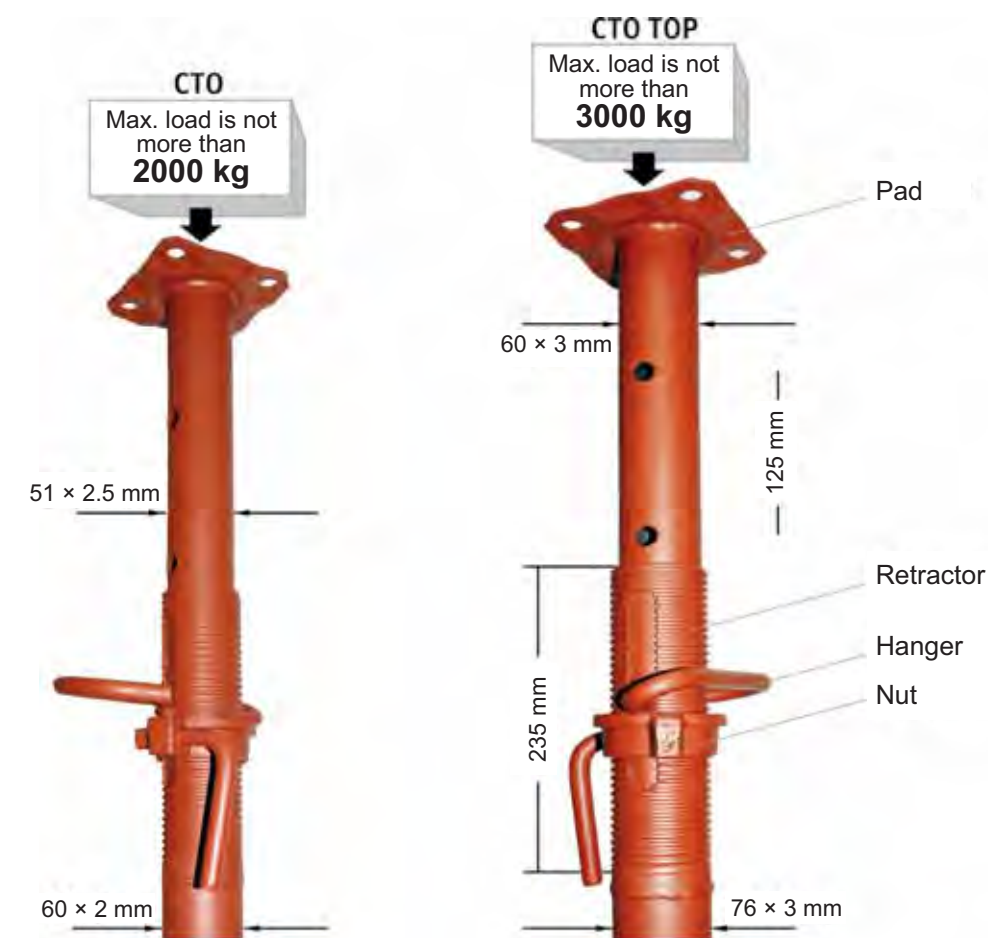
Application of telescopic leg in building industry is characterized by several positive features such as:

- Light weight of structures and high bearing capacity;
- Simplicity of erection and alignment of floors;
- Safety performance of building and erection activities of all types.



Telescopic leg arrangement scheme

## "Telescopic leg" system characteristics






- Nut form ensures impact wedging under load.
- Retractor thread is made by cold deformation method which increases life time of the retractor.
- Hanger is designed for load with strength margin of 30 %.
- While wrenching the nut to bottom thread cleaning from concrete is ensured.
- Pad has a special form that increases firmness and excludes deformation.



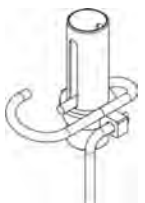


## Bridging formwork


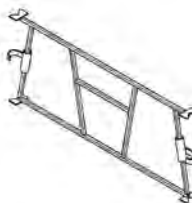
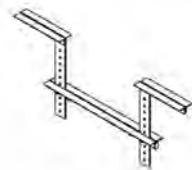

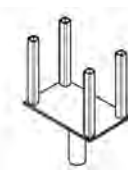
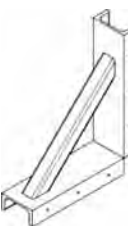
Telescopic leg  
system elements

No.	Description	Image	Drawing No.	Weight, kg
1. Telescopic leg with open thread XCI-20				
1.1	CTO-0,84(0,51)		0144.05.00.000	6.3
1.2	CTO-1,3(0,8)		XCI 01.012.1.000	7.04
1.3	CTO-1,7(1,2)		XCI 01.055.1.000	8.64
1.4	CTO-2,1(1,2)		XCI 01.058.1.000	9.44
1.5	CTO-2,5(1,4)		XCI 01.061.1.000	10.6
1.6	CTO-2,7(1,5)		XCI 01.064.1.000	11.18
1.7	CTO-3,1(1,7)		XCI 01.005Б.1.000	11.87
1.8	CTO-3,7(2,0)		XCI 01.006Б.1.000	13.74
1.9	CTO-4,0 (2,2)		XCI 01.032.1.000	14.96
1.10	CTO-4,2(2,5)		XCI 01.007Б.1.000	15.17
1.11	CTO-4,5(3,2)		XCI 01.013Б.1.000	16.16
1.12	CTO-4,8(3,7)		XCI 01.100Б.1.000	16.59
2. Reinforced telescopic leg with open thread XCI/TOP-30				
2.1	CTO-0,84(0,51) TOP		0059.09.00.000	8.01
2.2	CTO-3,1(1,7) TOP		XCI 01.028.1.000	19.13
2.3	CTO-3,7(2,0) TOP		XCI 01.027.1.000	22.32
2.4	CTO-4,2(2,5) TOP		XCI 01.029.1.000	25.02
2.5	CTO-4,5(3,2) TOP		XCI 01.030.1.000	27.32
2.6	CTO-5,5(3,7) TOP		XCI 01.026.1.000	21.5
3. Telescopic leg with closed thread XCI-20				
3.1	CT3-3,1(1,7)		XCI 01.050.1.000	13.66
3.2	CT3-3,7(2,0)		XCI 01.049.1.000	15.38
3.3	CT3-4,2(2,8)		XCI 01.048.1.000	16.81
3.4	CT3-4,5(3,2)		XCI 01.047.1.000	19.6

Manufacturing of components for bridging formwork is a fundamental activity for our enterprise since its foundation. Application of our components is possible with different formwork systems.

<b>4. Components</b>				
4.1	Screw pair		XCI 01.201.1.000	1.82

## Bridging formwork

No.	Description	Image	Drawing No.	Weight, kg
<b>4. Components</b>				
4.2	Universal enclosure		XCI 01.202.1.000	12.87
4.3	Connection frame 0,6x1,0		XCI 01.306.1.000	6.26
4.4	Clamp		0004.06.00.000	17.8
4.5 4.6	Tripod (25) Reinforced tripod (38)		XCI 01.310.1.000 XCI 01.309.1.000	3.8 9.9
4.7	Universal "crown"		XCI 01.509.1.000	1.47
4.8	Pad for grout application		XCI 01.011.1.000	6.68

## 1.2 Cuplock pier column XCU-GW

### Arrangement and operating principle of the item

Support cuplock pier column system XCU-GW can be used as a bridging formwork, framework of bridges, viaducts and other similar structures as well as formwork of tunnel erected by open or close method.

Support cuplock column system XCU-GW is a metal pipe construction consisting of rows of vertical elements, horizontal elements and addition structures.

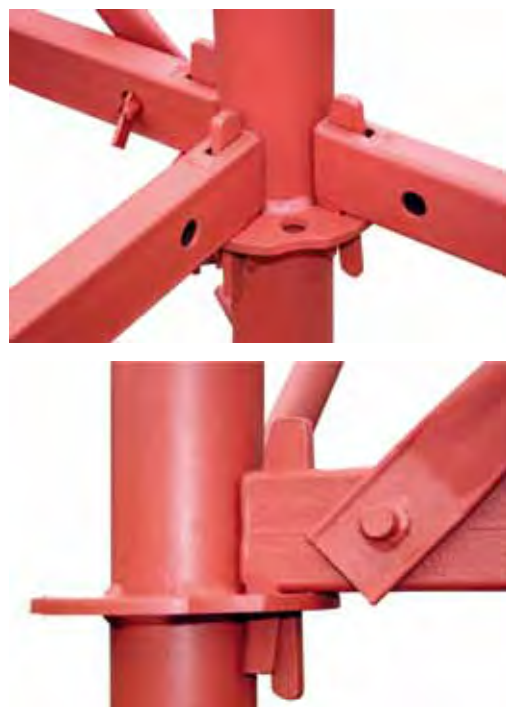
Support cuplock pier column XCU-GW ensures simplicity and safety of work on erection of high-rise floors by one order more than similar systems. On the basis of tableform supporting shoes or lifting jacks on which starting columns are installed are placed. Achievement of required tableform height is ensured by addition precast columns of different height and therefore distance between support surface and lower face of floor can be adjusted in any range. There are flanges for girder fixing on the columns. Cell which is formed from girders of standard types is set depending on floor thickness. Jacks used for erection of low row are installed on top addition precast columns. Universal "crowns" are used to lay wooden beams. Lifting of employees during erection and dismantling is performed by the use of ladders which are fixed at girders by hook.

Application of XCU-GW system allows grout application for floors of different types such as

- Straight tableform;
- Straight tableform reinforced by reinforced concrete beam;
- Floor with chapters.

Also it is possible to place columns as separate towers and blocks.

Column and girder of XCU-GW system are connected and fixed between each other by the use of wedge forming reliable self-wedging unit patented by Group of companies HozStroyInstrument. Patent for useful model No. 76366.



- Wedge unit arrangement ensures strictly perpendicular connection between girder and column, increases construction strength and firmness and at the same time it does not require special adjusting tools.
- Girder is fixed so that load can be applied above or below because wedge angle of slope is negative during operation.
- The simplest installation because installation at the first stage is performed by two erectors and then it can be performed by one person.
- It is not required to hold a wedge during installation.
- Convenience of dismantling ensures by accessibility of wedging.

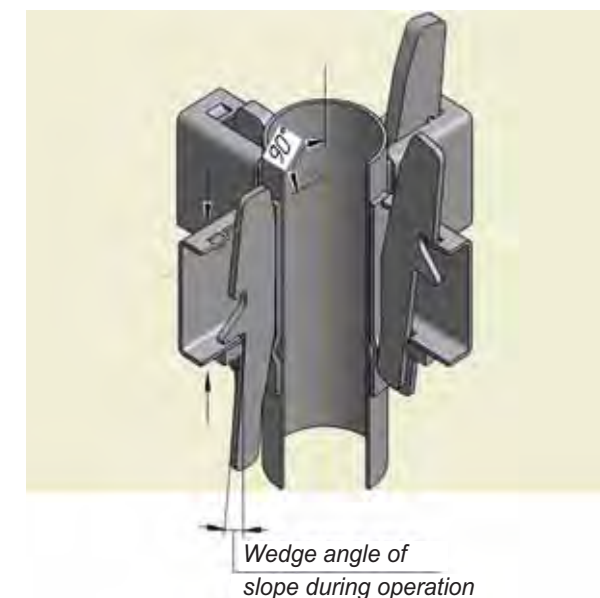
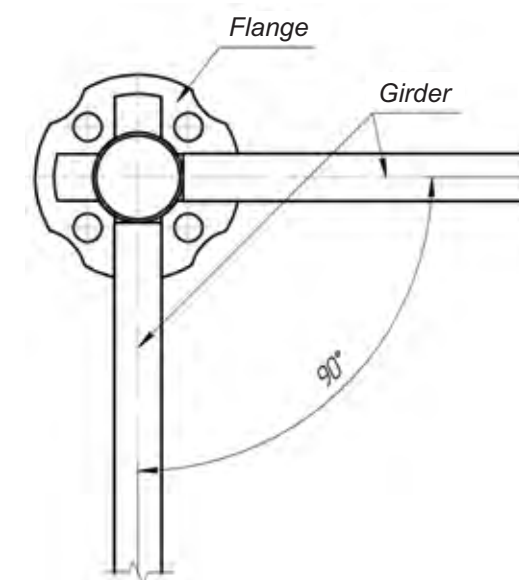
### Basic technical data for XCU-GW systems

Parameter description	Cuplock pier column		Reinforced cuplock pier column	
Floor height, m	min	max	min	max
	1.5	20.0	1.5	40.0
Column pitch, m	0.5; 0.75; 1.0; 1.25; 1.5; 1.75; 2.0			
Axle load, kg	2700		5000	
Girder load, kg	1200			
Jack load, kg	3000		6000	
Turnover rate	250			

#### Universal XCU-GW cuplock pier column system has a wide range of advantages:

- XCU-GW cuplock pier column allows formation of any arrangement of floors;
- Modular structure of XCU-GW allows optimal load distribution using maximum bearing capacity of supports. If axis pitch is 0.25 regarding column pitch and girder pitch is 1 m (height) it is possible to form axle load up to 12 tons (МОП-12 system);
- Wedge unit arrangement ensures reliable connection which fixes column in relation to girder with angle of 90 degrees and increases strength and firmness of the structure;
- Maximum girder load is 1200 kg, therefore it is possible grout application for reinforced concrete beam simultaneously with grout application for deck;
- Set of standard elements allows installation of required structure with height up to 40 m.

Special flange arrangement ensures fixation location of girders at 90 degrees, therefore it ensures simplicity of installation





### Cuplock pier column. Moscow-city

Universal system of XCU-GW cuplock pier columns is a modular system of progressive formwork used for erection of monolithic concrete and reinforced concrete structures.

Universal system of XCU-GW cuplock pier columns with height up to 6 m and area of 1200 m<sup>2</sup> was used at the object. During grout application for reinforced concrete beam support was performed on horizontal girder which allows maintenance of connections between assembled structure under the floor and reinforced concrete beam. Floor thickness was 300 mm.



### Shopping and entertaining complex. Town of Obninsk

The Shopping and entertaining complex was erected with the use of HozStroyInstrument products almost entirely. For grout application for floors formwork systems based on cuplock pier columns were used. Selection of the system was based on possibility of cuplock pier column use as wedge-type scaffolding as well as universality of the system regarding floor types:

- Straight tableform;
- Straight tableform reinforced by reinforced concrete beam;
- Floor with chapters.

GW system column and girder are connected and fixed between each other with the use of wedge forming reliable self-wedging wedge unit patented by HozStroyInstrument. Total area of grout application was 20,480 m<sup>2</sup>.

#### XCU system use:

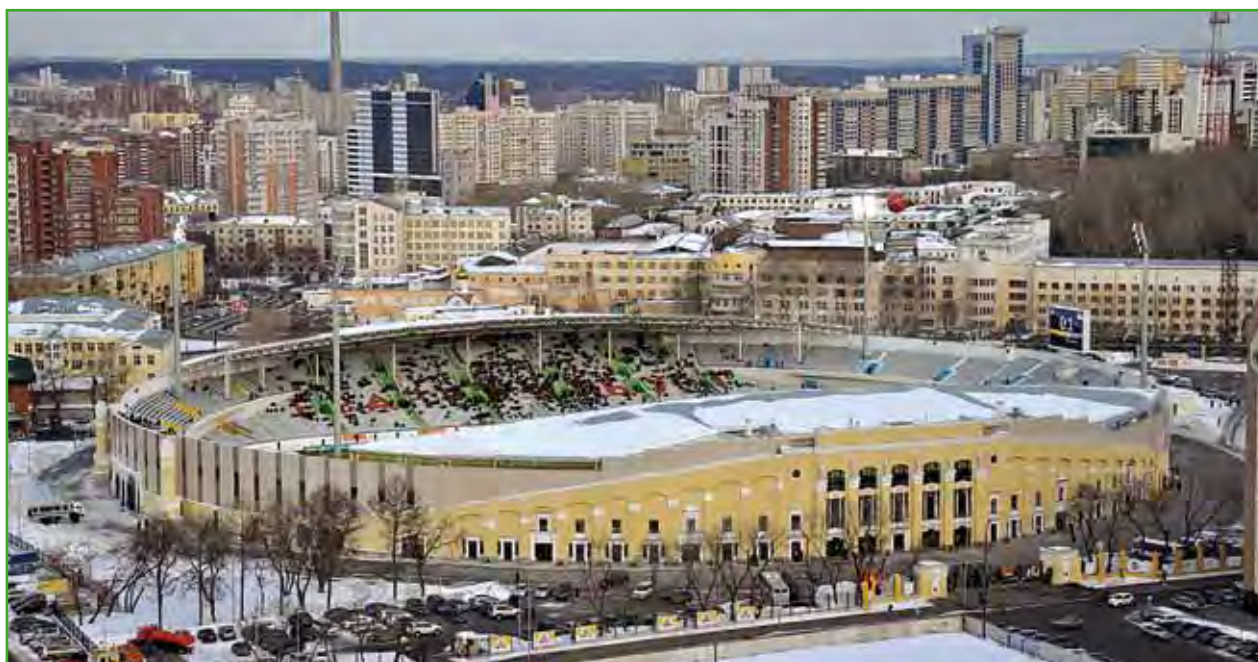
- XCU-GW cuplock pier columns;
- Translucent metal structures.





### Football stadium. Ekaterinburg

Cuplock pier column with non-standard height was used at the object. Area of grout application was 1,000 m<sup>2</sup>.



### Shopping and entertaining center. Ekaterinburg.

During object construction one set of columns was applied, it was used for floors at all heights.





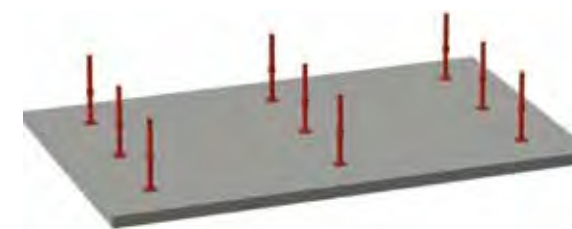
## Bridging formwork

Cuplock pier  
system elements

No.	Description	Image	Drawing No.	Weight, kg
1 Starting column (тр.57x2)				
1.1	Starting column СТС-1,0(2)		ХСИ03.104.1.000-04	3.5
1.2	Starting column СТС-1,4(2)		ХСИ03.104.1.000-06	4.58
1.3	Starting column СТС-1,5(2)		ХСИ03.104.1.000-07	4.85
1.4	Starting column СТС-1,8(2)		ХСИ03.104.1.000-08	5.67
1.5	Starting column СТС-2,0(2)		ХСИ03.104.1.000-09	6.2
1.6	Starting column СТС-2,4(2)		ХСИ03.104.1.000-10	7.6
1.7	Starting column СТС-4,4(3)		ХСИ03.104.1.000-14	13.11
2 Addition precast column (тр.57x2)				
2.1	Addition precast column СТД-0,5		ХСИ03.100.1.000-00	2.64
2.2	Addition precast column СТД-1,0		ХСИ03.100.1.000-01	4.0
2.3	Addition precast column СТД-1,5		ХСИ03.100.1.000-05	5.35
2.4	Addition precast column СТД-2,0		ХСИ03.100.1.000-06	6.71
2.5	Addition precast column СТД-4,0(2)		ХСИ03.100.1.000-17	12.52
3 Jack (support element) тр.48x3				
3.1	Jack Дм 0,6(0,35)		ХСИ03.009.1.000-00	3.00
3.2	Jack Дм 0,85(0,6)		ХСИ03.009.1.000-01	3.8
3.3	Jack Дм 1,1(0,85)		ХСИ03.009.1.000-02	4.6
4 Girder (horizontal element)				
4.1	Girder 0,5		ХСИ03.006.1.000-00	1.76
4.2	Girder 0,75		ХСИ03.006.1.000-01	2.46
4.3	Girder 1,0		ХСИ03.006.1.000-02	3.16
4.4	Girder 1,25		ХСИ03.006.1.000-03	3.86
4.5	Girder 1,5		ХСИ03.006.1.000-04	4.56
4.6	Girder 1,75		ХСИ03.006.1.000-05	5.26
4.7	Girder 2,0		ХСИ03.006.1.000-06	5.96
5 Horizontal diagonal rod				
5.1	Horizontal diagonal rod 1,25 x 1.25		ХСИ03.001.1.000-16	4.57
5.2	Horizontal diagonal rod 1.25 x 2.5		ХСИ03.001.1.000-38	7.28
5.3	Horizontal diagonal rod 1.25 x 3.0		ХСИ03.001.1.000-47	8.48
6 Vertical diagonal rod				
6.1	Φ-type vertical diagonal rod 1000x1000		ХСИ03.007.1.000-01	4.84
6.2	Φ-type vertical diagonal rod 1500x1500		ХСИ03.007.1.000-10	7.01
6.3	Φ-type vertical diagonal rod 2000x2000		ХСИ03.007.1.000-18	9.20
7 Accessories				
7.1	Shoe		1001K-11.00.00	1.1
7.2	Insert		0002.07.00.000	1.15

## Bridging formwork

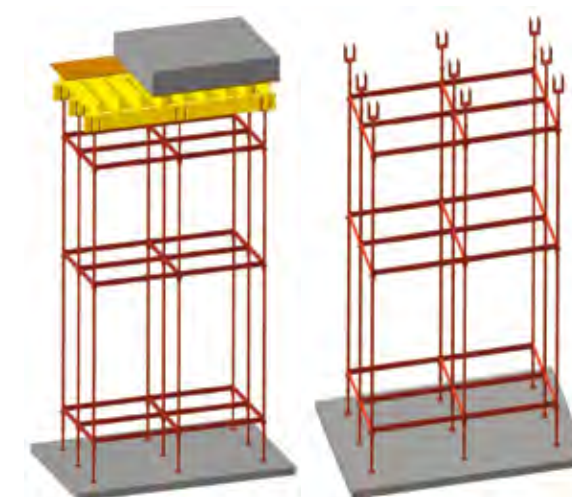
## Stages of cuplock pier column installation

**1 Placing of jacks**

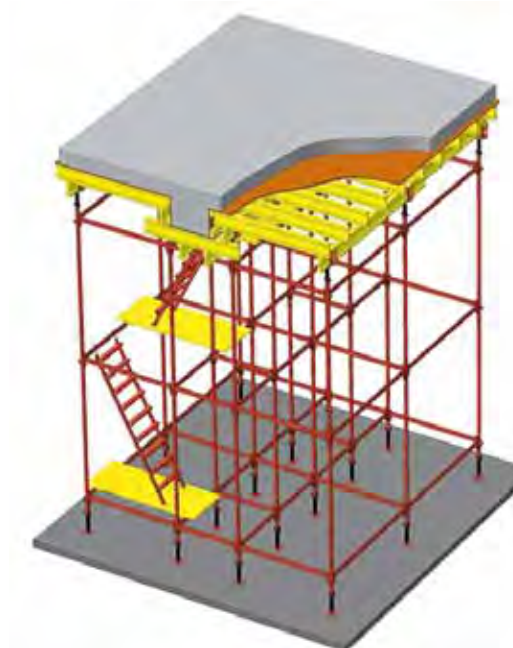
- Plan and ram a site;
- Lay wooden support as per axes (in case of structure installation to soil);
- Install jacks on the wooden supports at a distance of column pitch according to scheme as per plan of work performance.

**2 Installation of lower row of column**

- Install starting columns on jacks;
- Connect columns with each other by longitudinal and transversal girders;
- Align column verticality;
- Perform adjustment of low jacks.

**3 Increase of the structure to required height**

- Install addition precast columns on starting columns in accordance with installation scheme;
- Connect columns by longitudinal and transversal girders;
- Install top jacks and universal "crowns". Required height is achieved by top jack adjustment.

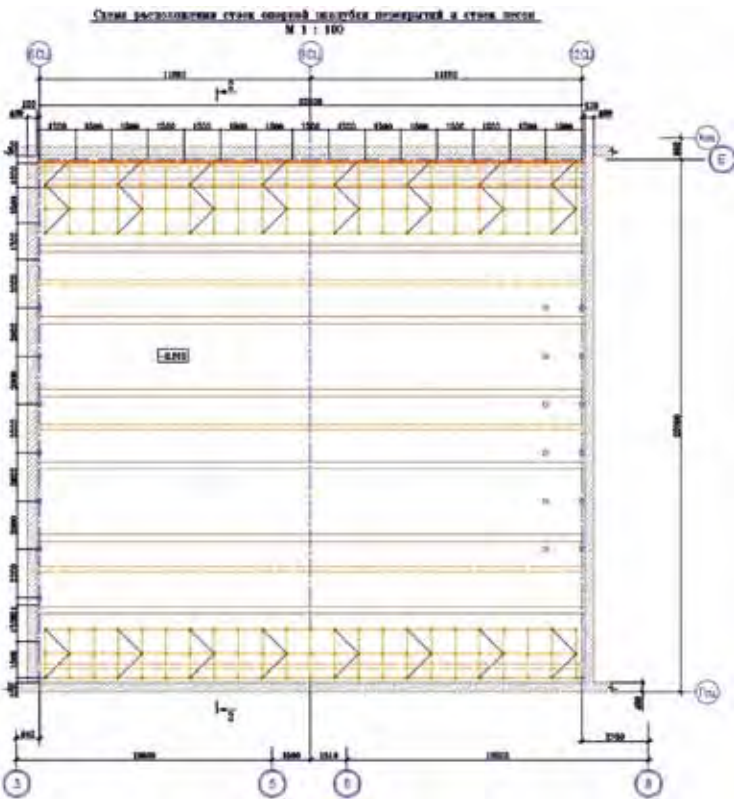
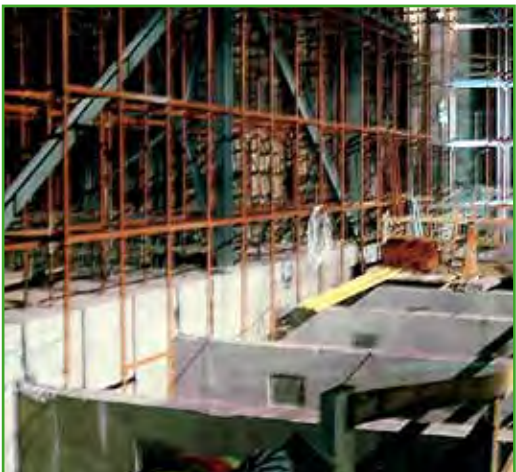
**4 View of ready structure**

- Girder formwork is assembled with the use of beams and bars;
- Ladders which can be installed at any pitch of columns and for any girder length shall be used in order to meet safety rules and ensure installation speed.



"Bolshoy" theatre reconstruction. Moscow

Construction of universal cuplock pier column system is very firm which allows grout application for floors at high height.



1.3 Wedge scaffolding

Elements of cuplock pier column can be used as scaffolding.

Wedge scaffolding name was arisen from element fixation method (wedge). In contrast to other scaffolding fixation method, wedge fixation method has a range of advantages;

Attachable wedge column scaffolding is intended for performing of stonework and decorating work at a height of 80 m. Exclusive wedge unit ensures a range of construction issues providing reliability of structure and at the same time simplicity of installation:

- A considerable part of vertical load constituent is transferred to flange directly by girder;
- Firm perpendicular connection between girder and column is ensured, wedge is included in common load-bearing scheme of connection and bears horizontal load constituent working under bent.

Scaffolding application fields:

- During building construction;
- During brickwork, plastering as well as during restoration of building facades and inside restoration work;
- As a support frame system for formwork;
- Shipbuilding;
- During construction of stages and platforms for concerts, shows and other events.

High reliability and simplicity of scaffolding use were highly evaluated by many building companies. Scaffolding manufacturing located in Russia as well as certificates and licenses are guarantee of our company stability and stability of our products.

Technologies used during scaffolding manufacturing and wedge fixation principle allow creating of complex structures as per any customer request.

Basic scaffolding technical data

Description	Unit	Value
Maximum scaffolding height	m	80
Column pitch along a wall	m	2.0; 2.5; 3.0
Column pitch perpendicular to a wall	m	1.25
Working deck height	m	2.0
Quantity of flooring decks which can simultaneously laid on the scaffolding		
For stonework	pcs.	2
For decorating work	pcs.	4
Maximum load applied to flooring	kgf/m <sup>2</sup>	300; 250; 200



## 1.4 Support Scaffold Bridge МОП ХСИ 7 and МОП ХСИ12

Support scaffold bridge is intended for use as a load bearing structural component of the horizontally mounted formwork for cast-in-situ reinforced concrete supports and span structures, as well as for temporary supports, scaffolding, pre-assembly support fixture and other complex auxiliary structures and facilities during construction and installation operations in bridge engineering.

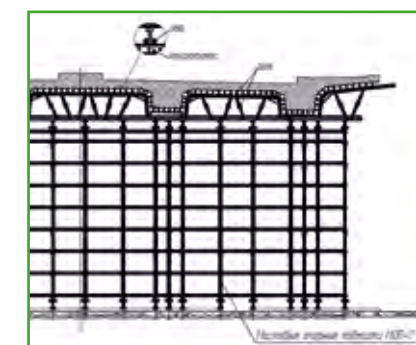
МОП ХСИ 7 and МОП ХСИ12 systems are compatible with ХСИ-GW cuplock pier columns and fit one another (horizontally).

### МОП ХСИ Basic Engineering Systems

No	Characteristic description	Value	
		МОП ХСИ-7	МОП ХСИ-12
1	Maximum load on pier column axis, kgf	7,000	12,000
2	Pier column spacing, m	0.5; 0.75; 1.0; 1.25; 1.5; 1.75; 2.0	
3	Height from the supporting surface to formwork panels, m	min	max
		1.5	20.0
4	Maximum permissible transom load, kgf	1,200	
5	Repetition in use	250	

## Tikhomirny street junction with Esperanto street construction, Kazan



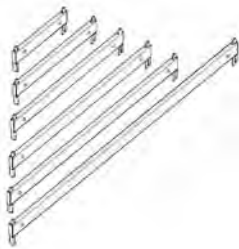


During a flyover bridge construction ХСИ МОП universal system was used. For roadbed grouting МОП 7 was used, while МОП 12 was used during transom grouting, the systems being quite complementary. ХСИ girder-beam formwork system was applied to form bridging contour.






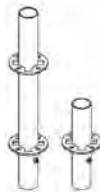
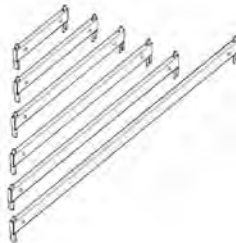
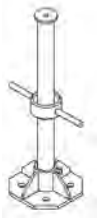

## Bridging formwork

## МОП ХСИ-7 elements

No.	Description	Image	Drawing No.	Weight, kg
1,	Starting column			
1.1	Starting column СтСМ7-2,4		ХСИ09.001.1.000	11.40
2.	Addition precast column			
2.1	Addition precast column СтДМ7-0,8		ХСИ09.002.1.000	4.77
2.2	Addition precast column СтДМ7-1,0		ХСИ09.002.1.000-01	5.62
2.3	Addition precast column СтДМ7-1,2		ХСИ09.002.1.000-02	6.46
2.4	Addition precast column СтДМ7-1,5		ХСИ09.002.1.000-03	7.72
2.5	Addition precast column СтДМ7-2,0		ХСИ09.002.1.000-04	10.26
3.	Girder (horizontal element)			
3.1	Girder 0,5		ХСИ03.006.1.000-00	1.76
3.2	Girder 0,75		ХСИ03.006.1.000-01	2.46
3.3	Girder 1,0		ХСИ03.006.1.000-02	3.16
3.4	Girder 1,25		ХСИ03.006.1.000-03	3.86
3.5	Girder 1,5		ХСИ03.006.1.000-04	4.56
3.6	Girder 1,75		ХСИ03.006.1.000-05	5.26
3.7	Girder 2,0		ХСИ03.006.1.000-06	5.96
4.	Jack (support element)			
4.1	Jack with universal "crown" ДМУМ7-0,85x0,6		ХСИ09.003.1.000	8.34
4.2	Jack Дм7-0,85x0,6		ХСИ09.004.1.000	6.55

## Bridging formwork

## МОП ХСИ-12 elements

No.	Description	Image	Drawing No.	Weight, kg
1,	Starting column			
1.1 1.2 1.3 1.4	Starting column СтС М12-1,0 Starting column СтС М12-1,5 Starting column СтС М12-2,0 Starting column СтС М12-3,0		ХСИ10.002.1.000 ХСИ10.002.1.000-01 ХСИ10.002.1.000-02 ХСИ10.002.1.000-03	8.20 11.41 14.54 20.88
2.	Addition precast column			
2.1 2.2	Addition precast column СтД М12-0,4 Addition precast column СтД М12-0,85		ХСИ10.001.1.000 ХСИ10.001.1.001-01	2.64 5.53
3.	Girder (horizontal element)			
3.1 3.2 3.3 3.4 3.5 3.6 3.7	Girder 0,5 Girder 0,75 Girder 1,0 Girder 1,25 Girder 1,5 Girder 1,75 Girder 2,0		ХСИ03.006.1.000-00 ХСИ03.006.1.000-01 ХСИ03.006.1.000-02 ХСИ03.006.1.000-03 ХСИ03.006.1.000-04 ХСИ03.006.1.000-05 ХСИ03.006.1.000-06	1.76 2.46 3.16 3.86 4.56 5.26 5.96
4.	Jack (support element)			
4.1	Jack Дм М12-0,6x0,27		ХСИ10.003.1.000	13.99
4.2	Jack with universal "crown" ДМУ0 М12-0,6x0,27		ХСИ10.004.1.000	13.85

Vertical diagonal rod and horizontal diagonal rod is supplied for all range of cells and installed if height from support platform to slab being cast is more than 6.0 m.



1.5 Support scaffold bridge МОП ХСИ-20

It is intended for use as a separate scaffold bridge installed manually. It is applied in case of high load for formation of horizontal forms of monolithic reinforced concrete supports and span structures; for assembling of temporary supports, working scaffolding, pre-assembly support fixtures; complex auxiliary facilities, facilities during construction and erection work in bridge construction industry.

МОП ХСИ-20 system is applied as temporary support for span structure steel beams. The system is designed for load of 20 tons on column axis, patent No. 120682.



МОП ХСИ-20 connection with the use of hardware



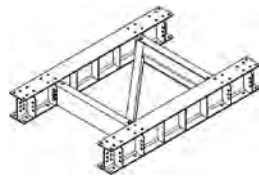
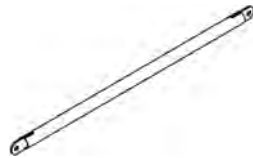




МОП ХСИ-20 elements

No.	Description	Image	Drawing No.	Weight, kg
1 Support elements				
1.1	Shoe Б1		ХСИ07.013.1.000	3.73
1.2	Shoe Б2		ХСИ07.014.1.000	8.21
1.3	Shoe ДЗ		ХСИ07.021.1.000	7.99
1.4	Jack Д1		ХСИ07.020.1.000	13.08
1.5	Jack Д1		ХСИ07.010.1.000	17.56
1.6	Jack Д2		ХСИ07.011.1.000	16.99
1.7	Jack ДЗ		ХСИ07.012.1.000	13.71
2. Vertical elements (columns)				
2.1	Column Ст1		ХСИ07.001.1.000	26.01



## Bridging formwork

No.	Description	Image	Drawing No.	Weight, kg
2. Vertical elements (columns)				
2.2	Column Cт2		XCI07.002.1.000	46.01
2.3	Column Cт3		XCI07.003.1.000	15.00
3. Grillage				
3.1	Diaphragm P1.2		06.0.028	26.43
3.2	Bearer P1.1		XCI07.007.1.000	156.83
3.3	Connection P1.3		05.0.010	8.64
4. Connection				
4.1	Connection C4		XCI07.004.1.000	7.00
4.2	Connection C5		XCI07.005.1.000	4.99
5. Hardware parts				
5.1	Mark Cк1 (bolt, nut, 2 washers)		XCI07.100.9.000	0.30

## Bridging formwork

No.	Description	Image	Drawing No.	Weight, kg
<b>6. Others</b>				
6.1	Threaded bearing flange Φ3		XCI07.015.1.000	7.91
6.2	Bearing flange Φ1		XCI07.009.1.000	3.13
6.3	Bearing flange Φ4		XCI07.016.1.000	6.48
6.4	Flange Φ2		XCI07.006.1.000	5.55
6.5	Cup Д2		XCI07.022.1.000	5.82

## Comparison between XCI-GW and МОП-XCI

System description	Pipe diameter, mm	Allowable load, tons	Maximum height girder pitch, m	Type of unit connection (column – girder)
Cuplock pier column	57x2	2.7	2.0	Wedge
Reinforced cuplock pier column	57x3	5.0	1.0	Wedge
МОП-7	60x3	7.0	1.0	Wedge
МОП-12	76x3	12.0	1.0	
МОП-20	89x3	20.0	1.25	With the use of hardware



## Wall formwork

Monolithic wall formwork is a universal system of progressive small-panel forms and large-panel forms intended for erection of foundations, walls and columns in residential construction and office block construction.

The wall formwork allows performing of concreting of walls up to 3.3 m without limitation of concreting speed and with meeting requirements regarding wall evenness norms.

Supply set includes panels, knees, scaffolding supports, preassembled coupling bolts, wedge locks, leveling beams, outside and inside angle elements, enclosure supports, erection lifters. Determination of parts to be supplied is performed by manufacturer and agreed by customer for each separate order. All wall formwork panels can be installed either vertically or horizontally.

Now types of component parts for wall formwork fully ensure completeness, assembly, erection and safety operation of formwork panels of different systems. Set of component parts ensures assembly on the basis of panels of different systems.

### 2.1 Small-panel forms.

**Small-panel** forms are formwork for ground and underground construction, they consist from small-size panels, supporting, connecting and installing elements with weight up to 50 kg, therefore it is possible to install the forms manually. Small-panel forms XCU have firm steel frame, wide range of basic and auxiliary parts, si it is possible to create any complex form for grout application. System of small-panel forms XCU allows manual assembly of panels (all component parts can be carried by hand and installed by one person with easiness).

XCU small panel forms contain elements which are manufactured with the use of state-of-the-art equipment, therefore reliability of panel frame weld joints and accurate observance of standard sizes is ensured.



### Individual system of steel formwork for bridge support grout application. City of Kazan



System of small-panel formwork for foundation grout application for individual building construction

### System of small-panel formwork for grout application during thermoelectric power station construction. City of Adler

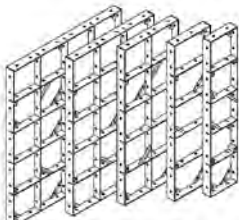
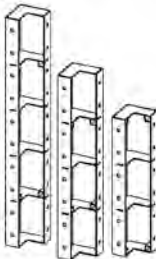


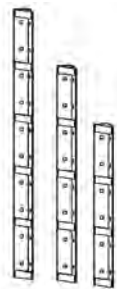
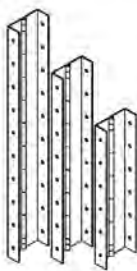
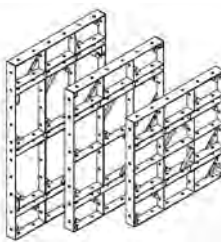
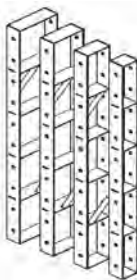


## Small-panel formwork characteristics:

- Light constituents;
- Convenient component parts;
- Wide modular range of elements;
- Possibility for creation of any combinations of elements;
- Accurate and easy connection of elements into one system;
- Panel deck is a high-quality laminated plywood (thickness is 18 mm);
- It does not require special storage conditions;
- Saving of formwork materials and working time;
- Easy attachment to any building design;
- Long life time;
- Concrete design pressure is 40 kN/m<sup>2</sup>, design pressure of reinforced concrete is 60 kN/m<sup>2</sup>;
- Possibility of manufacturing of panels and component part as per special sizes.

### Elements of small-panel forms

No.	Description	Image	Drawing No.	Weight, kg
1. Linear panel				
1.1	Panel 0,3x0,9		ХСИ04.001.1.000	14.256
1.2	Panel 0,3x1,2		ХСИ04.004.1.000	18.468
1.3	Panel 0,3x1,5		ХСИ04.007.1.000	22.416
1.4	Panel 0,4x0,9		ХСИ04.012.1.000	17.050
1.5	Panel 0,4x1,2		ХСИ04.013.1.000	21.710
1.6	Panel 0,4x1,5		ХСИ04.008.1.000	26.379
1.7	Panel 0,6x0,9		ХСИ04.002.1.000	24.165
1.8	Panel 0,6x1,2		ХСИ04.005.1.000	30.964
1.9	Panel 0,6x1,5		ХСИ04.009.1.000	37.763
1.10	Panel 0,9x0,9		ХСИ04.003.1.000	33.811
1.11	Panel 0,9x1,2		ХСИ04.006.1.000	43.724
1.12	Panel 0,9x1,5		ХСИ04.010.1.000	53.637
1.13	Panel 1,2x1,5		ХСИ04.011.1.000	70.271
2. Inside angle panel				
2.1	Inside angle H=0,9		ХСИ04.030.1.000	18.360
2.2	Inside angle H=1,2		ХСИ04.031.1.000	23.986
2.3	Inside angle H=1,5		ХСИ04.032.1.000	29.612

No.	Description	Image	Drawing No.	Weight, kg
3. Outside angle panel				
3.1	Outside angle H=0,9		XCI04.040.1.000	6.13
3.2	Outside angle H=1,2		XCI04.041.1.000	8.12
3.3	Outside angle H=1,5		XCI04.042.1.000	10.12
4. Swivel angle panel				
4.1	Swivel angle panel H=0,9		XCI04.033.1.000	15.53
4.2	Swivel angle panel H=1,2		XCI04.034.1.000	20.69
4.3	Swivel angle panel H=1,5		XCI04.035.1.000	25.84
5. Universal panel				
5.1	Universal panel H=0,9		XCI04.036.1.000	34.754
5.2	Universal panel H=1,2		XCI04.037.1.000	53.141
5.3	Universal panel H=1,5		XCI04.038.1.000	65.383
6. Addition precast element				
6.1	Addition precast element 0,1x0,9		XCI04.050.1.000	8.858
6.2	Addition precast element 0,15x0,9		XCI04.050.1.000-01	10.823
6.3	Addition precast element 0,2x0,9		XCI04.050.1.000-02	12.526
6.4	Addition precast element 0,25x0,9		XCI04.050.1.000-03	14.23
6.5	Addition precast element 0,1x1,2		XCI04.050.1.000-04	11.71
6.6	Addition precast element 0,15x1,2		XCI04.050.1.000-05	14.189
6.7	Addition precast element 0,2x1,2		XCI04.050.1.000-06	16.406
6.8	Addition precast element 0,25x1,2		XCI04.050.1.000-07	18.624
6.9	Addition precast element 0,1x1,5		XCI04.050.1.000-08	14.561
6.10	Addition precast element 0,15x1,5		XCI04.050.1.000-09	17.555
6.11	Addition precast element 0,2x1,5		XCI04.050.1.000-10	20.286
6.12	Addition precast element 0,25x1,5		XCI04.050.1.000-11	23.018



## 2.2 Large-panel forms

Quality of materials being used and manufacturing technology of large-panel form ensures strength and long life time of elements. Panel frame produced from special steel and aluminium shapes has a closed outline. Steel shape anti-corrosion protection is performed by hot galvanizing. Inside and outside surfaces of shapes with inside weld joint are galvanized within panel frame. Such shape increase formwork strength and firmness and galvanizing of all surfaces increases operation time. Deck is produced from plywood with synthetic laminated coating (thickness is 18 mm, laminated coating density is 120 g/cm<sup>2</sup>), therefore ideal combination is created for obtaining high-quality concrete surfaces. There are holes in steel frame, they are located proportionally and they ensure quick and reliable connection between different elements of the system, transference of them in panels through a site. Steel formwork can bear loads from concrete mix up to 80 kPa.

Variety of panel dimensions enables optimal formwork selection for any objects: panel height is 0.6; 1.2; 2.5; 3.0; width is from 0.3 to 2.4 (meters). Steel formwork application ensures obtaining of different monolithic reinforced concrete structures with even surfaces which do not require any additional finishing.

### Technical data

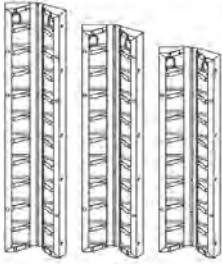
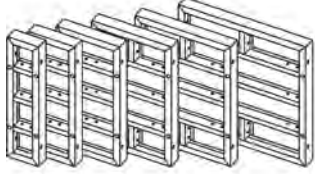
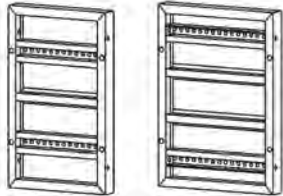
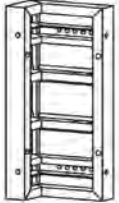
- Maximum panel height is 3.3 m
- Concrete mixture pressure is 80 kPa
- Maximum load on scaffolding is 180 kg/m<sup>2</sup>
- Deflection is not more than 1/400
- Steel frame turnover rate is up to 500 cycles
- Panel deck turnover rate is not less than 80 cycles (40 cycles per one side)



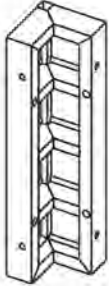
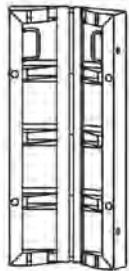

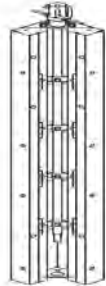
No.	Description	Image	Drawing No.	Weight, kg
1.	<b>Linear panel</b> It can be applied either in horizontal position or in vertical position		2,4x3,3 1,2x3,3 0,9x3,3 0,75x3,3 0,6x3,3 0,45x3,3 0,3x3,3 2,4x3,0 1,2x3,0 0,9x3,0 0,75x3,0 0,6x3,0 0,45x3,0 0,3x3,0 2,4x2,7 1,2x2,7 0,9x2,7 0,75x2,7 0,6x2,7 0,45x2,7 0,3x2,7	402 187.5 151.5 141.5 113.5 95.5 77.5 367 171 138 121 101.7 85.3 68.7 327.7 153 123.2 108.3 89.7 74.5 59.9
2.	<b>Universal panel</b> There are horizontal holes intended for pivot bolts with a pitch of 5 cm in the universal panels		0,9x3,3 0,76x3,3 0,9x3,0 0,76x3,0 0,9x2,7 0,76x2,7	173 143 155 130 132.1 113.8
3.	<b>Inner universal angle panel</b> It is used for inner angles, it is equipped with holes with a pitch of 5 cm along its wide side		0,3x0,5x3,3 0,3x0,5x3,0 0,3x0,5x2,7	157 142 119.5
4.	<b>Inner angle panel</b> It is used for rectangular inner angles		0,3x0,3x3,3 0,3x0,3x3,0 0,3x0,3x2,7	116.2 105.3 92.1



## Wall formwork

No.	Description	Image	Marking	Weight, kg
5.	<b>Inner swivel panel</b> It is used for inner angles from 60 to 175 degrees		3x0,3x3,3 0,3x0,3x3,0 0,3x0,3x2,7	117.6 105 92
6.	<b>Addition precast panel</b> It is used for required height obtaining		1,2x1,5 1,0x1,5 0,9x1,5 0,8x1,5 0,75x1,5 0,7x1,5 0,65x1,5 0,6x1,5 0,55x1,5 0,5x1,5 0,45x1,5 0,4x1,5 0,3x1,5 0,25x1,5 1,2x1,2 1,0x1,2 0,9x1,2 0,8x1,2 0,75x1,2 0,7x1,2 0,65x1,2 0,6x1,2 0,55x1,2 0,5x1,2 0,45x1,2 0,4x1,2 0,3x1,2 0,25x1,2	92 80 74 68 65 62 56.5 54 51 48 45 42 36.5 33.5 76.7 66 62.1 56 54.8 52.4 46.5 44 42 39.5 36.9 34 29.5 27.5
7.	<b>Universal addition precast panel</b>		0,9x1,5 0,76x1,5 0,9x1,2 0,76x1,2	87 72 73.8 58.2
8.	<b>Angle addition precast panel</b> Inner universal		0,3x0,5x1,5 0,3x0,5x1,2	78 63

## Wall formwork

No.	Description	Image	Marking	Weight, kg
9.	<b>Inner angle panel</b>		0,3x0,3x1,5 0,3x0,3x1,2	46 41.7
10.	<b>Inner swivel panel</b>		0,3x0,3x1,5 0,3x0,3x1,2	57 46
11.	<b>Outer swivel angle panel</b>		0,1x0,1x1,5 0,1x0,1x1,2	33 26.5
12.	<b>Striking angle panel</b> It is used during erection of pit formwork		YP 3,3 YP 3,0 YP 2,7 YP 1,5 YP 1,2	161 147 133 78 65




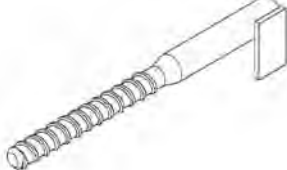
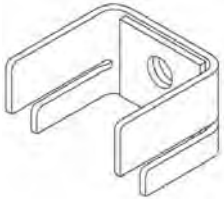
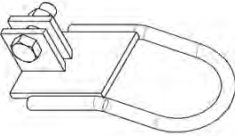
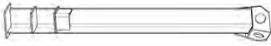


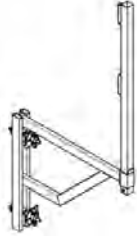
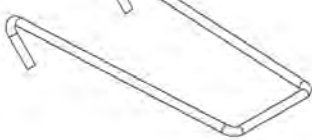
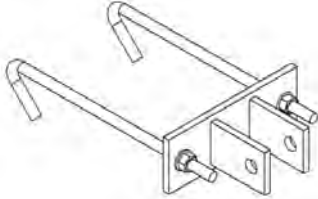
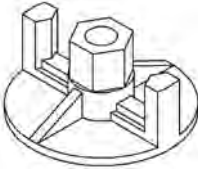
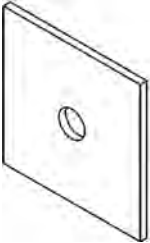

2.3 Formwork component elements

At present time range of component elements for wall formwork being produced at full ensures completeness, assembly, installation and safety operation of formwork panels for different systems.

Set of component elements ensures assembly on the basis of panels for different systems:


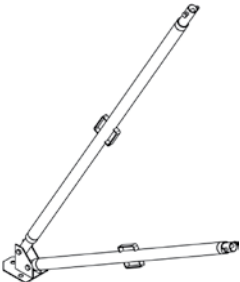
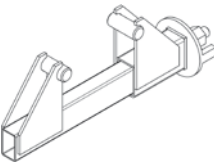
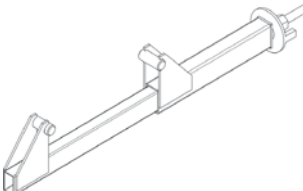
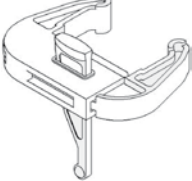
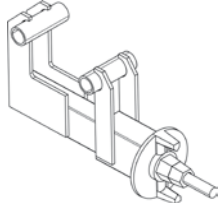
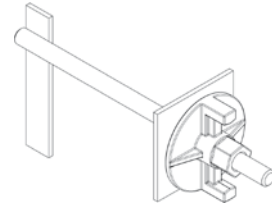
- Wall formwork
- Column formwork
- Elevator well formwork
- Fixation of panels is ensured by a range of locks, pivot bolts and washers as well as by reliable and long-lived knees with own exclusive know-how for closed threaded element.

No.	Description	Image	Drawing No.	Weight, kg
1.	<b>Percussion lock</b> It is intended for assembly of small panels of all types through holes in binder profile		XCU 0019	0.5
2.	<b>Pivot bolt Ш-5</b> It is intended for column assembly from universal panels		XCU 04.062.2.000	1.6
3.	<b>Anchoring cap</b> It is intended for fixation of double-sided wall formwork with the use of coupler screw		XCU 04.065.1.000	0.72
4.	<b>Sling grab</b> It is intended for lifting and transference of assembled wall formwork		XCU 04.066.1.000	2.33
5.	<b>Stockpiling column</b> It is intended for storage and transference of panels		XCU 04.071.1.000	7.73

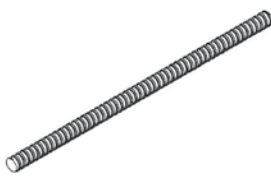
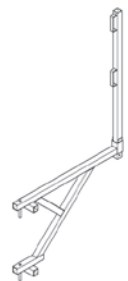
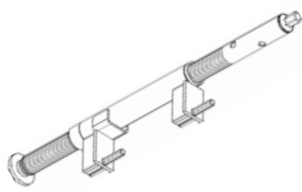

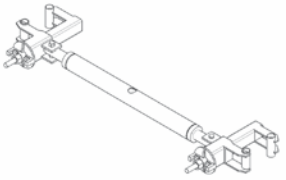
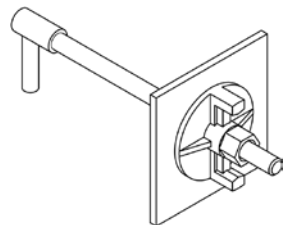
No.	Description	Image	Drawing No.	Weight, kg
6.	<b>Scaffolding support</b> It is intended for installation on panels as structures for location of persons and materials during performing of monolithic concrete work		XCU 04.070.1.000	16.9
7.	<b>Bracket</b> It is intended for fixation of wooden beam to panels		XCU 09.1.039	0.54
8.	<b>Shoe</b> It is a top shoe in relation to one-level and two-level knees		XCU 04.063.1.000	2.02
9.	<b>Nut 100</b> It is intended for coupler screw and pivot bolt			0.66
10.	<b>Washer</b> It is installed between a panel and a nut		100x100 180x180	1.4 2.02
11.	<b>Levelling beam</b> It is intended for connection of panels and ensuring of panel firmness		600 800 1000 1250 1500 2000 2500 3000 4000	4.5 6.1 7.5 9.4 14.07 18.33 22.6 26.82 33.58



## Wall formwork

No.	Description	Image	Drawing No.	Weight, kg
For large-panel formwork				
1.	<b>One-level knee</b> It is intended for supporting of panels in vertical position		L1 2400-3100 2500-4500 5000-6000 8000-14000	16.2 20.7 22.6
2.	<b>Two-level knee</b> It is intended for supporting of panels in vertical position		L1 L2 1635-2100 2400-3100 L1 L2 1550-2500 2500-4500 L1 L2 3000-4000 5000-6000	23.31  28.2  34.7
3.	<b>Lock 001Y</b> It is intended for connection of panels into large panel units and alignment between each other		XCI 02.208.1.000 001	4.06
4.	<b>Lock 250Y</b> It is intended for connection of panels with insert between panels up to 250 mm		XCI 02.207.1.000 250	6.0
5.	<b>Wedge lock</b> It is intended for connection of panels		XCI.0024 XCI.0039	4.9
6.	<b>Lock 120-140</b> It ensures connection of panels of steel / aluminium formwork		0204.08.00.000	3.2
7.	<b>Pivot bolt III</b> For connection of universal panels		XCI 02.243.1.000	1.0

## Wall formwork

No.	Description	Image	Drawing No.	Weight, kg
For large-panel formwork				
8.	<b>Coupler screw</b> It is intended for connection of parallel panels			1.6 (running meter)
9.	<b>Scaffolding bracket</b> It serves as a limiter for working area		XCI 02.078.1.000	13.6
10.	<b>Panel removal jack</b> It is used during dismantling of large-panel formwork		XCI 02.046.1.000	6.91 8.46
11.	<b>Grab</b> It is intended for transference of panels		XCI 02.200.1.000	5.2
12.	<b>Well thrust</b> It is intended for installation and dismantling of inner well elements			1,5 2,0 2,5 2,7 3,0 3,5 15.8 18.2 21.0 22.0 25.5
13.	<b>Pivot bolt III2</b> For connection of panels on levelling beams		XCI 02.2440.1.000	0.9



## Girder-beam formwork

Group of companies "HozStroyInstrument" manufactures different types of formwork including girder-beam formwork. It is a modern wall formwork system which allows easing of building process and elimination of adjustment and use of massive equipment and special preliminary preparation.

GIRDER-BEAM formwork is applied in monolithic building industry for different buildings and facilities, it is universal and consists of frame panels to be assembled at shop or at site.

Laminated plywood with thickness of 18 mm and 21 mm is used as panel deck. Variety of panel dimensions allows optimal selection of formwork for any objects. Application of girder-beam wall formwork makes it possible to erect various monolithic reinforced concrete structures with even surfaces which do not require any additional finishing during performing of decorating work.

Our company produces formwork with the use of standard sets of columns with section from 250 x 250 mm to 900 x 900 mm.

### Girder-beam formwork system advantages are the following:

- Possibility of performing work at any height;
- Big bearing capacity;
- High turnover rate;
- Resistance to deformation;
- It is possible to produce formwork for any column section.



### Plant construction. City of Vladimir

Column girder-beam formwork application makes it possible to install formwork for full column height (13.6 meters).



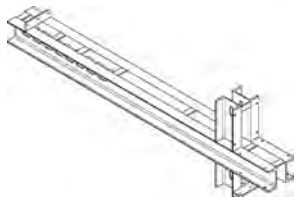
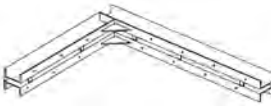


## Girder-beam formwork

## Girder-beam formwork elements




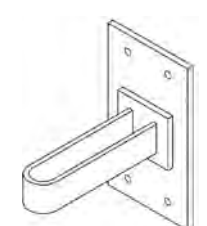

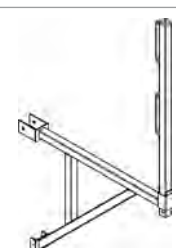
No.	Description	Image	Drawing No.	Weight, kg
1.	Linear girder			
1.1	Linear girder 700		XСИ05.001.1.000	12.02
1.2	Linear girder 950		XСИ05.001.1.000-01	16.15
1.3	Linear girder 1100		XСИ05.001.1.000-02	18.73
1.4	Linear girder 1170		XСИ05.001.1.000-03	19.93
1.5	Linear girder 1200		XСИ05.001.1.000-04	20.45
1.6	Linear girder 1450		XСИ05.001.1.000-05	24.83
1.7	Linear girder 1700		XСИ05.001.1.000-06	29.01
1.8	Linear girder 1780		XСИ05.001.1.000-07	30.39
1.9	Linear girder 1825		XСИ05.001.1.000-08	31.19
1.10	Linear girder 1950		XСИ05.001.1.000-09	33.35
1.11	Linear girder 2200		XСИ05.001.1.000-10	37.67
1.12	Linear girder 2390		XСИ05.001.1.000-11	41.29
1.13	Linear girder 2450		XСИ05.001.1.000-12	42.01
1.14	Linear girder 2700		XСИ05.001.1.000-13	46.35
1.15	Linear girder 2950		XСИ05.001.1.000-14	50.65
1.16	Linear girder 3200		XСИ05.001.1.000-15	54.97
1.17	Linear girder 3450		XСИ05.001.1.000-16	59.31
2.	Insert			
2.1	Insert 740		XСИ05.002.1.000	4.43
2.2	Insert 990		XСИ05.002.1.000-01	5.96
2.3	Insert 1470		XСИ05.002.1.000-02	8.80
2.4	Insert 2110		XСИ05.002.1.000-03	12.60
2.5	Swivel insert 640		XСИ05.009.1.000	12.18
2.6	Swivel insert 800		XСИ05.009.1.000-01	15.09

## Girder-beam formwork



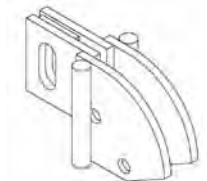





No.	Description	Image	Drawing No.	Weight, kg
3.	Angle girder			
3.1	Angle girder 700		XCI05.003.1.000	17.87
3.2	Angle girder 950		XCI05.003.1.000-01	22.10
3.3	Angle girder 1170		XCI05.003.1.000-02	25.88
3.4	Angle girder 1200		XCI05.003.1.000-03	26.40
3.5	Angle girder 1450		XCI05.003.1.000-04	30.86
3.6	Angle girder 1700		XCI05.003.1.000-05	35.16
3.7	Angle girder 1825		XCI05.003.1.000-06	37.30
3.8	Angle girder 1950		XCI05.003.1.000-07	39.46
3.9	Angle girder 2200		XCI05.003.1.000-08	43.81
3.10	Angle girder 2390		XCI05.003.1.000-09	47.13
3.11	Angle girder 2450		XCI05.003.1.000-10	48.15
3.12	Angle girder 2700		XCI05.003.1.000-11	52.57
3.13	Angle girder 2950		XCI05.003.1.000-12	56.87
3.14	Angle girder 3200		XCI05.003.1.000-13	61.23
4.	Column angle girder (From 200 to 1200)			
4.1	Column angle girder 830x830		XCI05.004.1.000	27.20
4.2	Column angle girder 930x930		XCI05.004.1.000-01	30.20
4.3	Column angle girder 1030x1030		XCI05.004.1.000-02	33.60
4.4	Column angle girder 1130x1130		XCI05.004.1.000-03	37.15
4.5	Column angle girder 1230x1230		XCI05.004.1.000-04	40.70
4.6	Column angle girder 1330x1330		XCI05.004.1.000-05	44.14
4.7	Column angle girder 1430x1430		XCI05.004.1.000-06	47.58
4.8	Column angle girder 1530x1530		XCI05.004.1.000-07	51.14



## Girder-beam formwork

No.	Description	Image	Drawing No.	Weight, kg
5.	Universal girder (From 300 to 900)			
5.1	Column girder 1472		XCI05.010.1.000	25.90
5.2	Column girder 1274		XCI05.011.1.000	26.37
6.	Polyhedral column girder			
6.1	Non-standard girder		XCI05.012.1.000	51.30
7.	Component parts			
7.1	Coupler screw (measured in running meters)		XCI09.0.021	1.6
7.2	Coupling nut			0.5
7.3	Buckle		XCI05.006.1.000	0.77
7.4	Wedge		XCI05.007.1.000	0.31
7.5	Wedge KZ			0.5
7.6	Scaffolding bracket		0117.08.00.000	14.20

## Girder-beam formwork

No.	Description	Image	Drawing No.	Weight, kg
7.7	Cover plate for beam increase		0066.08.00.000	5.60
7.8	Strap		0065.08.00.000	4.84
7.9	Coupler screw hanger bracket		XCI05.008.1.000	2.20
7.11	One-level knee 3.0 m		XCI02.089.1.000-37	11.97
7.12	One-level knee 2.5-4.5 m		XCI02.004.1.000-17	16.81
7.13	One-level knee 6.0 m		XCI02.027.1.000-37	35.72
7.14	One-level knee 8.0 m		XCI02.041.1.000-20	48.20
7.15	One-level knee 10.0 m		XCI02.025.1.000-20	60.19
7.16	One-level knee 12.0 m		XCI02.024.1.000-20	70.40
7.17	One-level knee 14.0 m		XCI02.045.1.000-20	85.00
7.18	Two-level knee 3.0 m		XCI02.090.1.000-37	28.86
7.19	Two-level knee 2.5-4.5 m		XCI02.003.1.000-17	30.18



Girder-beam formwork

No.	Description	Image	Drawing No.	Weight, kg
7.	Component elements			
7.20	Two-level knee 6.0 m		XCI02.060.1.000-37	61.30
7.21	Two-level knee 8.0 m		XCI02.100.1.000-20	82.00
7.22	Two-level knee 10.0 m		XCI02.026.1.000-20	100.20
7.23	Two-level knee 12.0 m		XCI02.024.1.000-20	120.64
7.24	Two-level knee 14.0 m		XCI02.044.1.000-20	136.00
7.25	End holder		XCI05.005.1.000	1.72
7.26	Clamp VT-20			0.6
7.27	Washer 180x180		XCI01.02.254.1.000	2.02



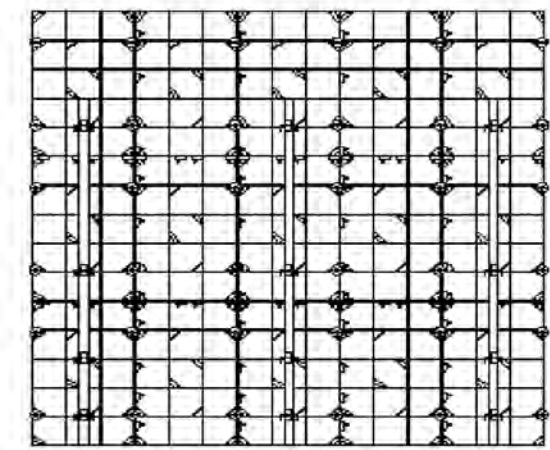
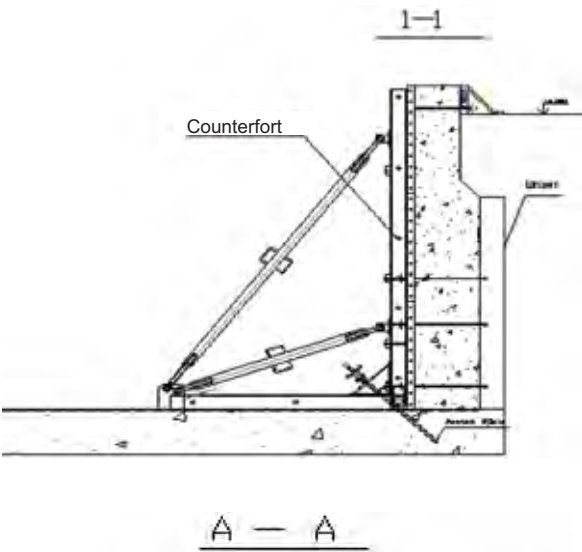
4.

Counterforts

Counterforts are metal frames used for concreting of one-sided walls with high vertical load. The system makes it possible to decrease pressure stress of concrete and lifting force of base.

Counterforts can be united with all wall formworks. Hardware is installed depending to applied formwork system and fixation conditions.

The formwork elements produced by Group of companies "HSI" for erection of supporting walls have adjustable base and allow erection of supporting walls with required height depending to design. The system provides for assembly of trapeziform frame up to required height. It can bear concrete pressure up to 80 kN/m<sup>3</sup>.

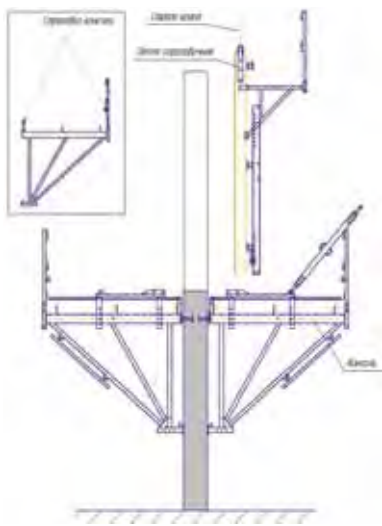
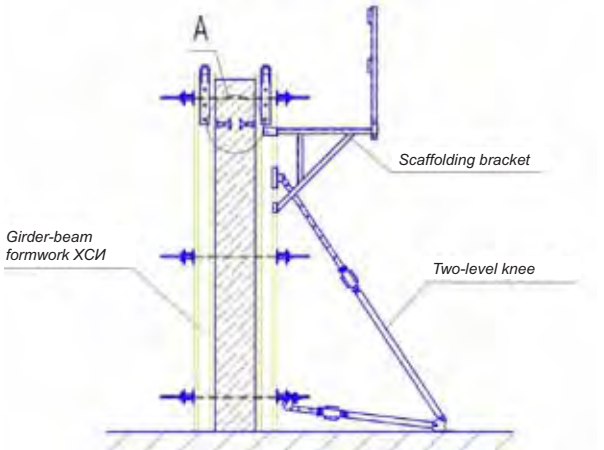




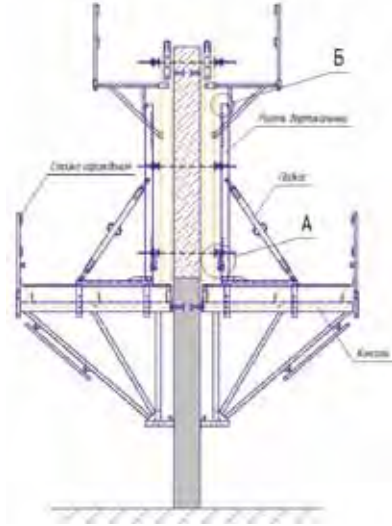
5. **Cantilever progressive formwork**

Cantilever progressive formwork transfers at concreting height during one cycle at full and it is fixed with the use of filing anchors by crane.

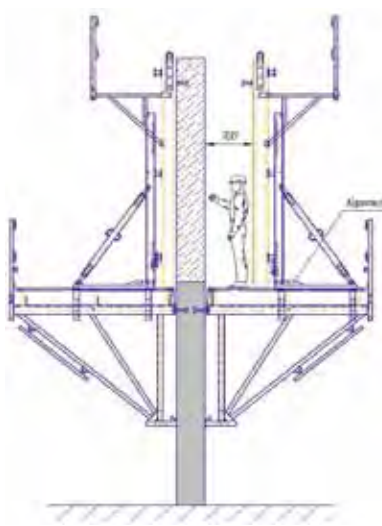
Work with the use of cantilever progressive formwork shall be performed according to safety rules for high-altitude work.



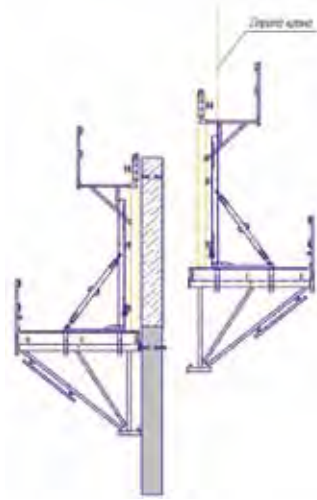
Formwork elevation is carried out with the use of straps.



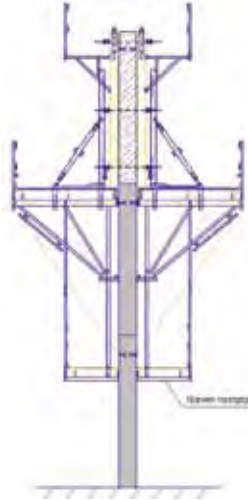
Adjuster ensures vertical adjustment of formwork panels.



Slider ensures formwork shift up to 700 mm from a wall being concreted.



Further transference is performed with the use of lifting pin.




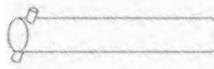
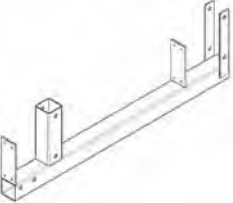





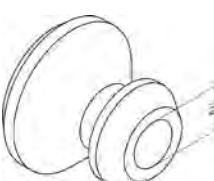
After second concreting a lower platform is to be hung.

**Cantilever progressive formwork elements**

No.	Description	Image	Drawing No.	Weight, kg
1.	<b>Basic cantilever</b> Bearer frame of working level		XCI 12.10.000	79.87
2.	<b>Slider</b> It is intended for large object transference		XCI 12.20.000	32.40
3.	<b>Toothed rack</b> It is intended for slider transference, it is fixed to cantilever with the use of bolts			7.7
4.	<b>Knee</b> It is intended for accurate adjustment of slope of a formwork element		XCI 12.160.00	13.33
5.	<b>Adapter</b> It is intended for element fixing. The fixing is possible in relation to horizontal or vertical elements			11



Cantilever progressive formwork

No.	Description	Image	Drawing No.	Weight, kg
6.	<b>Vertical girder</b> It is installed under cantilever with the use of bolts, it is intended for fixation of platform girder		XCH 12.80.000	36.2 36.9
7.	<b>Pin</b> It is intended for assembly of elements			0.24
8.	<b>Platform girder</b> It is fixed on vertical girder with the use of bolts. It serves as a lower support plate		XCH 12.100.000	13.5 13.48
9.	<b>Tilting girder</b> Vertical bearing element, it is fixed to cantilever			58.3
10.	<b>Enclosure column</b> It is intended for fixation of enclosure to large cantilevers. It is fixed with the use of bolts to outer end longitudinal beam		XCH 12.90.000	17.4
11.	<b>Enclosure column</b> It is intended for fixation of enclosure to end side. It is fixed with the use of bolts at end side to longitudinal beam of platform		XCH 12.40.000	4.59
12.	<b>Filling cone</b>		0045.11.00.000-01	3.09
	<b>Filling cone</b>		0045.11.00.000	2.96
13.	<b>Filling anchor</b>		0060.11.07.000	1.8
14.	<b>Ring hanger</b>		0107.11.00.000	1.07

6.

Safety nets

Safety enclosures named "safety nets" are applied for entrapment of person during fall and falling objects during new construction or reconstruction of existing buildings and facilities.

The items located along perimeter of a building to be constructed make it possible to protect from fall of persons or large objects which weight is not more than 100 kg from height of 6-7 meters. Installation of safety screens and safety nets relates to construction and installation work and can be performed at mounted ventilated facades.

Application of safety nets as an addition protection device during construction of monolithic or monolithic brick buildings intended for various purposes starting from second floor and higher is recommended for building enterprises as per SNiP and enactment of Moscow Government No. 7 dated January 18, 2007 "Regarding application of safety nets at objects under construction in Moscow".



Basic technical data of the item

No.	Item description		Unit	Value
1	Safety net overhanging length		mm	3600
2	Installation pitch, not more than		mm	6000
3	Metal structure weight		kg	45.5
4	Overall dimensions for transportation			
		Length	mm	4500-5475
		Height	mm	100
		Width	mm	365
5	Safety net resistance to dynamic load impact during load fall			
		Load weight	kg	100
		Height	mm	7000
6	Net cell breaking load, not less than		kg	90
7	Net cell dimension, not more than		mm	30



## 7.

# Formwork systems rent

Our company offers renting of bridging formwork, wall formwork and all types of enclosures and safety nets on the basis of the best terms.

Individual approach to each client. For clients contacting our company for the first time preliminary consulting programs are performed including visit to client's object in order to train employees with equipment operation methods and right use of equipment. If required, training programs can be organized at office.

**Term of lease is not less than 30 days.**

The following items are always available at our company warehouse:

- Bridging formwork (up to 40,000 m<sup>2</sup>);
- Telescopic column (up to 20,000 pieces).





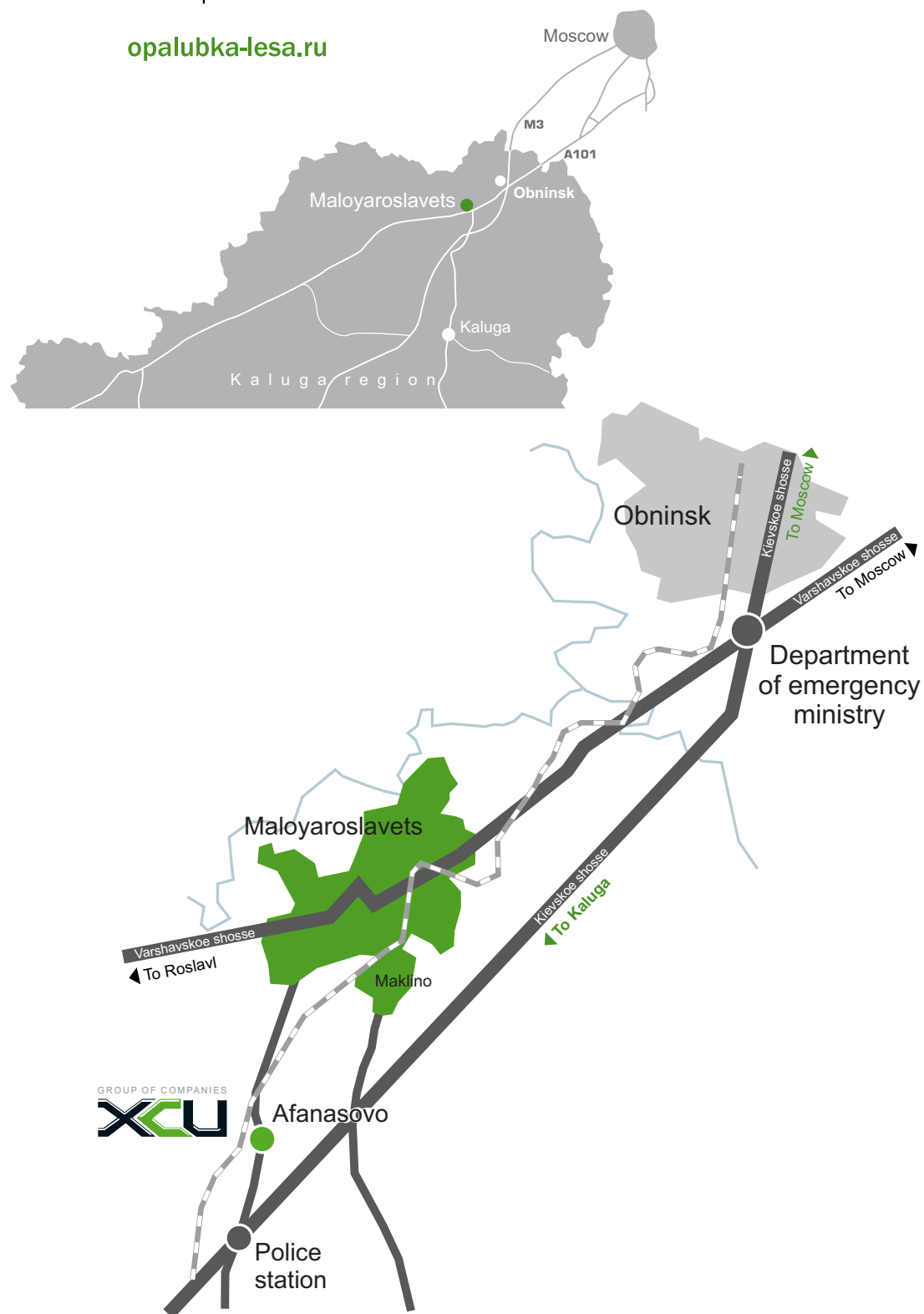
## Contacts

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Sales department phones: 8 (48431) 2-58-58, 2-58-55  
 8 (800) 200-58-50

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GROUP OF COMPANIES



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